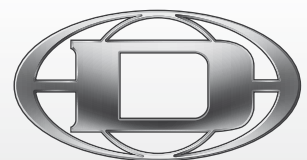




# Professional Power Amplifiers

MORE THAN 60 YEARS OF AMPLIFIERS EXPERIENCE

Mobile Audio | Concert Sound | Fixed Installation | Pro Entertainment



**DYNACORD**  
GERMAN ENGINEERING EXCELLENCE

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## ONE BRAND FITS ALL

*In our multimedia world, professional audio systems are playing an ever more important role. For this, power amplifiers are needed the characteristics and properties of which are tailored precisely to the application in question.*

*The spectrum of these requirements—from live music to fixed installation—has an extremely wide bandwidth and extends from very high power output combined with minimum weight to remote supervision and network capability. DYNACORD's extensive power amplifier portfolio offers an ideal and cost-effective solution for every field of application.*



## German Engineering Excellence

FOR MORE THAN 60 YEARS, DYNACORD HAS BEEN ONE OF THE MOST INNOVATIVE AND SUCCESSFUL MANUFACTURERS OF PROFESSIONAL AUDIO EQUIPMENT.



**In 1945 Werner Pinternagel, who was an engineer, founded a workshop for the repair of radio devices in the Lower Bavarian town of Pilsting. The development and manufacture of audio amplifiers, which he began at the same time, became a particular passion.**

These pioneering experiences formed the foundation for over 60 years of expertise in professional power amplifier technology—expertise upon which the brand DYNACORD is able to draw today. Early results included the KI cinema amplifier with its output of 25 watts. The devices of the company, which

in the meantime had moved to Landau and by then boasted a staff of four employees, still bore the brand name 'Dynaphon'.

From 1948 onwards, mixing and portable amplifiers bearing the name DYNACORD were being sold to an ever expanding circle of customers. Within a few years, the rapidly growing company had become one of the leading enterprises in the still young audio technology industry. Already in 1954, the manual workshop have given way to industrial production as the product portfolio continued to expand. The high-caliber, pioneering

and often visionary products have been presented ever since at all important international trade fairs and marketed successfully throughout the world. To make it possible to satisfy the enormous demand, DYNACORD moved to Straubing in 1958. The workforce, which at that time numbered 80 employees, continued to expand rapidly. Several times, the production facility was renovated or expanded.

Finally, in 1986 a new plant was opened in which more than 500 employees now develop, produce and dispatch the company's products to all corners of the globe.

# Milestones

THE CONSTANTLY EXPANDING PRODUCT RANGE YIELDED MANY PRO AUDIO MILESTONES.



■ **A high degree of innovation, uncompromising quality, exceptional user-friendliness and truly legendary reliability and value retention have for over 60 years defined the brand DYNACORD.**

- the first generations of professional mixing amplifiers [Eminent, Gigant]
- the first tape-echo/reverb devices [Echocord]
- the first 'affordable' digital reverb device [DRS 78]
- the most advanced digital drums [ADDone, ADDtwo]
- the first professional digital reverb device based on 32-bit floating-point processing [DRP-20]
- the first processor power amplifiers with LPN filters [PCA series]
- one of the most successful power amplifiers in concert sound [L2400 / EV P3000]
- the first processor-controlled complete audio system [P3, P5]
- the first digital loudspeaker controller with graphic display of the acoustic system frequency response in the editing software [DSP 224/244 with CrossMax and EV Dx34/38 with RACE]
- the Planar Waveguide bass horns [F 18, Alpha B3 and many others]
- the world's most powerful disco system [Alpha]
- the world's most successful powered mixer [PowerMate]
- the first stackable compact line array system [Cobra]
- the first Class H grounded bridge high-performance power amplifiers [PowerH]
- the unique IRIS-Net network software [incl. remote supervision, remote control of power amplifiers and digital audio matrices]
- the first digital power amplifiers with VLD-variable load drive [DSA Multi-Channel]



Echocord



DRS-78



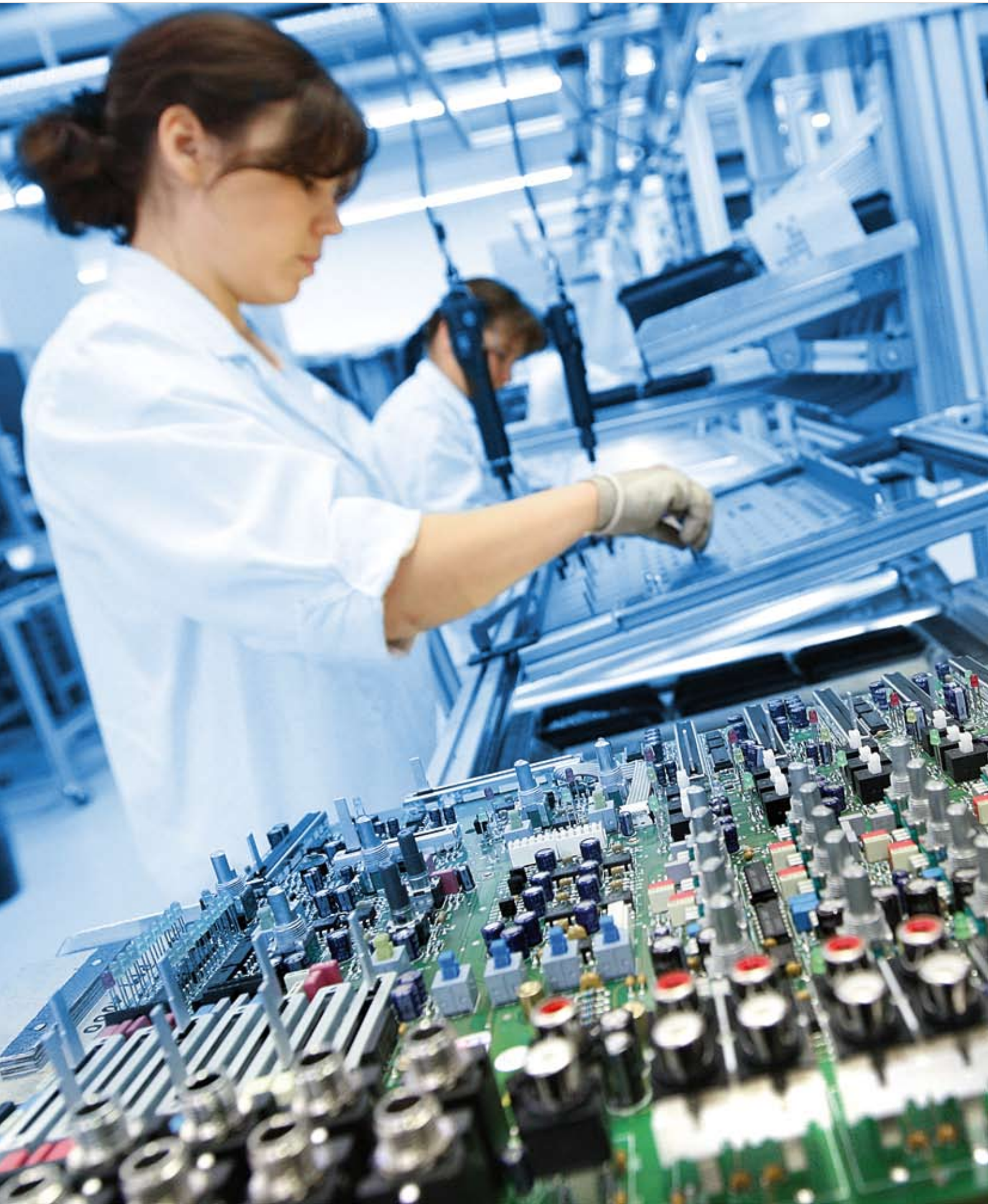
PowerMate



Cobra



PowerH







## Bosch Production System

QUALITY WITH SYSTEM

■ **With the introduction of the Bosch Production System (BPS) at the Straubing works, the brand DYNACORD is further enhancing its already legendary reputation for the highest production quality and reliability.**

Quality with system is assured by the BPS worldwide in all Bosch production centres, since absolutely identical indicators, equipment and processes are applied systematically throughout the enterprise. Decisions about which products to produce in which plant are primarily based on core areas of competence.

The same goes for the development. The first measures to guarantee quality are applied as early as the development phase of a product, where the 'thermal and mechanical stability', the 'secure functioning of the circuitry' and the demands of quality such as the acoustic performance and the product functions themselves are all ascertained in advance and rigorous tests conducted before any final decisions are taken about the design.

Decades of experience and the most modern quality management systems guarantee the extraordinary quality and legendary reliability of DYNACORD products.

# Measurement Hall

PART OF THE NEW INVESTMENT INVOLVED THE CONSTRUCTION AND COMMISSIONING OF WHAT AT 600 SQUARE METRES IS ONE OF THE WORLD'S LARGEST AUDIO MEASUREMENT HALLS.



## Manufacturing

■ Since September 2006, DYNACORD has belonged to the BOSCH concern's Security Technology department.

The production facility in Straubing has been considerably expanded and the work reorganized along the lines of the Bosch Production System (BPS). Part of the new investment involved the construction and commissioning of what at 600 square metres is one of the world's



*Manufacturing in Straubing, Germany*



largest audio measurement halls. One of the particular strengths of the brand DYNACORD is the fact that over the many years of its history profound know-how, covering the entire signal chain from the mixer to the loudspeakers has been acquired.

This advantage, coupled with its traditionally close relationship with users, has yielded many unique solutions to once-vexing problems and helped DYNACORD to develop a reputation the world over as a manufacturer of top-flight audio equipment on the absolute cutting edge of development.

■ **Additional capacity is available at the Bosch plant in Zhuhai, China, where the production also conforms to the BPS and quality controls are conducted using identical procedures and equipment.**



*Manufacturing in Zhuhai, China*

“All the measured data and the stability under continuous output are—as expected—of the highest order”

*PowerH 5000 test in 'Production Partner' 10/2007*





**The PowerH power amp series represents a further milestone in the 60-year pro audio tradition of DYNACORD.**

DYNACORD has long been established worldwide as a manufacturer of professional high-performance amplifiers and by virtue of numerous innovations and the downright legendary reliability of its products has secured for itself a firm place in the elite segment. No small contribution to this success has been made by the firm's largest OEM customer: its sister company, Electro-Voice.

For years now, countless large and very large sound reinforcement systems installed or on tour throughout the world have been relying on DYNACORD/Electro-Voice power amps. Thousands of amplifiers made by DYNACORD have been deployed on every continent and performed with distinction at many of the truly major productions of recent years.

## PowerH SERIES

the new age of power

- H 2500
- H 5000



## PowerH Series

### HI-END REMOTE CONTROLLABLE POWER AMPLIFIERS

■ **The demands placed on modern power amplifiers are enormous: maximum output, minimum weight, the highest possible degree of efficiency, outstanding audio characteristics, absolute reliability, remote supervision and remote control as well as network capability.**

To realize stable outputs of 2500 W / 4  $\Omega$  and 3500 W / 2  $\Omega$  per channel, power amplifiers must be capable of making available peak output voltages of 180 V to 200 V. This requirement limits the number of

topologies meriting consideration to two concepts only: Class D and DYNACORD's Linear Grounded Bridge Class H. Linear Push-Pull concepts with Class H topology are proven solutions for power levels up to 1500 W / 4  $\Omega$ .

This is the approach adopted by many DYNACORD power amplifiers. The limitation of the Class H push-pull approach is the 250 V specification of typical audio power transistors and their second breakdown restrictions. Even exceeding the specified peak voltage or the

second breakdown limit for short periods leads directly to a failure of the power transistors and the power amplifier. The use of exotic 350V-specified transistors affords no reliable solution in view of their second breakdown behaviour, their performance and also their availability.

Higher power classes require different solutions! DYNACORD's linear Grounded Bridge designs (e.g. L2400 / P3000) have proved extremely reliable over many years as well as outstanding in terms



of audio performance. One of the key advantages of Grounded Bridge solutions is the considerable reduction in 'voltage stress' for the power transistors. This permits the design of high-powered power amplifiers with peak output voltages in excess even of 200 V.

A logical step in the direction of lowering power dissipation whilst at the same time increasing the output power was the development of a linear Grounded Bridge topology using Class H technology with a multi-stage switching 'floating' po-

wer supply. The use of an extremely stable switching power supply makes a decisive contribution to the very low weight of these power amplifiers: 7 kW packed into a device a mere 2 rack units in height and weighing less than 15 kg!

PowerH power amplifiers are ready for integration into IRIS-Net-based audio systems and networks. Remote control modules (e.g. the RCM-26) that can be retrofitted offer complete system supervision and remote control combined with digital controller functions.

#### FEATURES

- stable, very high power output
- very high efficiency
- very lightweight
- multi-stage Grounded Bridge Class H topology
- 'floating' switching power supply
- large liquid crystal display
- integrated micro-controller for internal control
- remote control module can be retrofitted for integration into the IRIS-Net bringing supervision, remote control, digital controller functions and digital audio inputs



“ALL IN ALL, A PERFECT COMBINATION, IN WHICH IT IS EVIDENT FROM EVERY DETAIL THAT THE DEVELOPERS KNEW EXACTLY WHAT A HIGH-END POWER AMPLIFIER FOR THE PROFESSIONAL TOURING AND INSTALLATION MARKET NEEDS.”

*PowerH 5000 test in 'Production Partner' 10/2007*

■ **The power amplifiers of the PowerH series represent a milestone in the design and production of high-performance power amplifiers.**

Their innovative multi-stage Grounded Bridge Class H topology with its floating switching power supply offers very high and stable output power, very high efficiency, an extremely high level of audio performance and extremely low weight.

They are therefore the ideal drivers for professional touring and high-end concert sound, as well as pro sound, applications. Through the use of IRIS-Net-compatible remote control modules, they also offer extensive remote supervision and control functions as well as a universal two-channel digital controller including ultra-precise FIR filtering and digital algorithms to protect

the loudspeakers. DYNACORD power amplifiers are known for their absolute reliability under the most arduous of conditions on the road. Naturally this is also true of the PowerH models.

In addition to the legendary manufacturing quality that comes with the ‚Made in Germany‘ label, the comprehensive set of protective circuits plays an important role here: an integrated micro-controller coordinates tried-and-tested protections against short-circuit, HF or DC at the output, back EMF, overheating and open-circuit operation, the power-up current limitation and dynamic audio limiters as well as making additional new and highly intelligent protective functions possible: for example, the temperature in the power amplifiers is monitored at no fewer than six different points and the front-to-rear ventilator governed accordingly.

Under abnormal thermal ‚worst case‘ conditions, the CPU activates a voltage limiter or gain reduction depending upon the requirements of the situation, so as to obviate the need for a thermal shutdown of the power amplifiers. All corrective measures are indicated by LEDs on the front panel and detailed clearly on the liquid crystal display. In addition, a report is created making it possible to enquire later as to all such ‚interventions‘, each of which is time-stamped.

The mains voltage is monitored and displayed continuously, with the devices adapting automatically to 230 V, for example, or 120 V. At the same time, the mains current consumption is also monitored and displayed. The trip value of the automatic circuit breakers can be set by the user via the display of the power amplifier to prevent the circuit breakers tripping. Any short-





circuits at the output of the power amplifier are detected early on, even at low levels. The protective circuit is activated and a report on the fault in question appears simultaneously on the front display. In the event of excessive high-frequency overload, there is an automatic level reduction to protect the power amplifier itself and also the loudspeaker components connected.

The large, background-lit liquid crystal display delivers comprehensive status information, error reports and measurements as well as allowing you to control the basic settings and (with the IRIS-Net module integrated) select presets as well.

In addition to extreme reliability and forward-looking operating security, the PowerH power amplifiers are impressive for their outstanding audio performance. The THD,

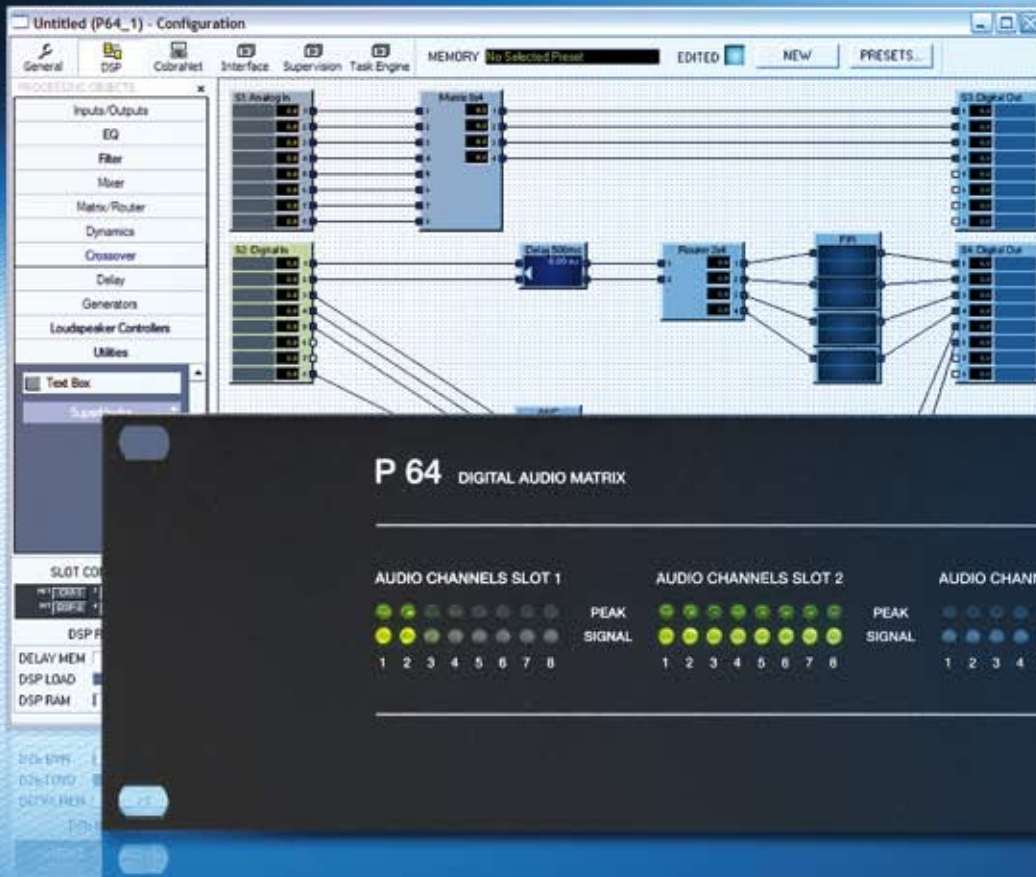
intermodulation distortion (IMD-SMPTE) and dynamic intermodulation (DIM) are well below 0.05% and therefore well below the limit of audibility. All the components of the switching power supply are so safely dimensioned that they are capable of delivering the maximum peak output current of 70 A continuously (H 5000), thereby allowing the power amplifier to operate as a stable voltage source even with extremely low loads. PowerH power amplifiers therefore have a significant amount of headroom at their disposal, which results in superlative dynamics even with low loads.

PowerH power amplifiers leave nothing to be desired in terms of connectivity. For the inputs, XLR IN/parallel OUT sockets are provided along with additional Phoenix connectors. The input sensitivity is switchable between 0dBu, +6dBu

and 32dB Constant Gain. In addition, there are switches for Bridged Mode and Parallel / Dual as well, naturally, as a Ground Lift switch.

A latching PowerCon connector is provided for the mains power line, which prevents the plug being yanked out accidentally. The power outputs are implemented as Speakon sockets. The signal of Output B is additionally available on pins  $\pm 2$  of Output A, so that with 4-pin wiring a two-way system can be driven. Parallel to these, additional binding posts are provided. In terms of connectivity, therefore, PowerH power amplifiers satisfy all the demands of both mobile applications and pro audio fixed installations.

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Straubing, Germany.



## Remote Control and IRIS-Net

IRIS-NET IS THE INTEGRATED SOFTWARE PLATFORM FOR ALL REMOTE-CONTROLLABLE DEVICES AND SYSTEMS FROM DYNACORD AND ELECTRO-VOICE.

**Using IRIS-Net, complete audio systems with a large number of devices of the same or different types can be configured, supervised and controlled centrally from a single user interface.**

IRIS-Net supports Ethernet, Cobra-Net, CAN-Bus and USB as well as being open to additional future implementations. IRIS-Net makes possible the complete supervision of power amplifiers and loudspeakers including their connecting cables and interfaces.

System conditions are polled continuously. Faults are detected immediately and reported, with all problems and events of other

kinds logged along with the date and time at which they occurred. All the parameters and settings of all system components can be saved and reloaded at the push of a button (Total Recall). Depending upon the application, users can design their own control panels, program automatic sequences, and create groups of devices or functions.

IRIS-Net has for several years already been used in hundreds of audio installations and systems and has proved its value in a variety of applications. IRIS-Net has also for years been the platform for amplifiers belonging to EV's Precision series, Netmax 8000 and the DYNACORD

P64 Digital Audio Matrix Manager. The P64 is a modular, network-capable audio system controller with which structures of any kind up to 32 audio channels can be configured freely. As well as FIR filters, a large number of DSP functions with outstanding audio quality (SNR > 115 dB) are available.

Its modular hardware and expandable DSP capacity make the P64 the perfect partner for all audio applications.

The RCM 810 (DSA series) and RCM 26 (Power H) remote control modules are also integrated into the IRIS-Net platform.

# RCM-26

## DIGITAL CONTROLLER MODUL FOR POWER H



■ **The RCM-26 is a dual-channel digital controller module for live sound, PA and fixed installation. It offers all conventional signal processing functions such as parametric equalizers, crossovers, delays, compressors and limiters.**

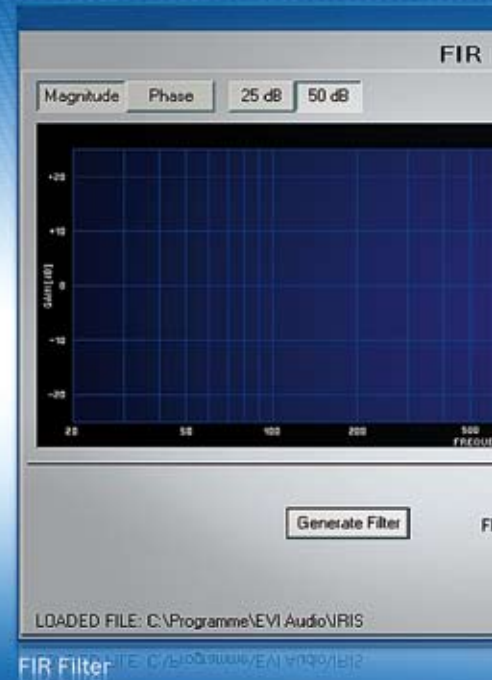
It also makes available linear phase FIR filters, zero-latency FIR filters and digital loudspeaker protection algorithms to permit the dynamic range of the amplifier to be exploited to the full. In addition to the electronically balanced analogue inputs of the power amplifier, digital inputs in AES3 (AES/EBU) format are on board. Using the CAN buss, networks of up to 250 power amplifiers can be realized. Additional interfaces include the RS-232 interface for medium control and the Control Port with freely-programmable control inputs and outputs (GPIO). Despite its compact dimensions,

the RCM-26 is unmatched in terms of its capabilities and audio performance. The IRIS-Net Remote Control Module RCM-26 extends the functionality of PowerH power amplifiers by providing:

### Remote Control

- AES3 (AES/EBU) digital inputs
- digital signal processing
- loudspeaker protection algorithms
- system integration and networking
- linear 24-bit AD/DA converters
- sigma-delta 128 x oversampling
- dynamic range > 116 dB
- 96 kHz sample rate, 48 kHz optional
- THD+N < 0.005%
- 2 DSPs 150 MHz / 300 MIPS computational power
- 48-bit double-precision algorithms





### SUPERVISION AND DIAGNOSIS

The RCM-26 transmits all relevant amplifier data to the IRIS-Net user interface, supervising the operating status of the power amplifiers, the temperature in the power blocks and in the power supply, voltages and currents at the outputs, all protections, the mains voltage and current consumption, pilot tone and network status.

The impedance measurement with a 20Hz to 20 kHz sine wave sweep and the comparison with the stored reference data make it possible to diagnose with precision the condition of the connected loudspeakers and even of their individual components and cable connections. Problems are therefore detected early and the system is able to respond in good time.

It is even easy to examine the state of loudspeakers that are difficult to access, such as those in stadiums or large entertainment venues. The System Check

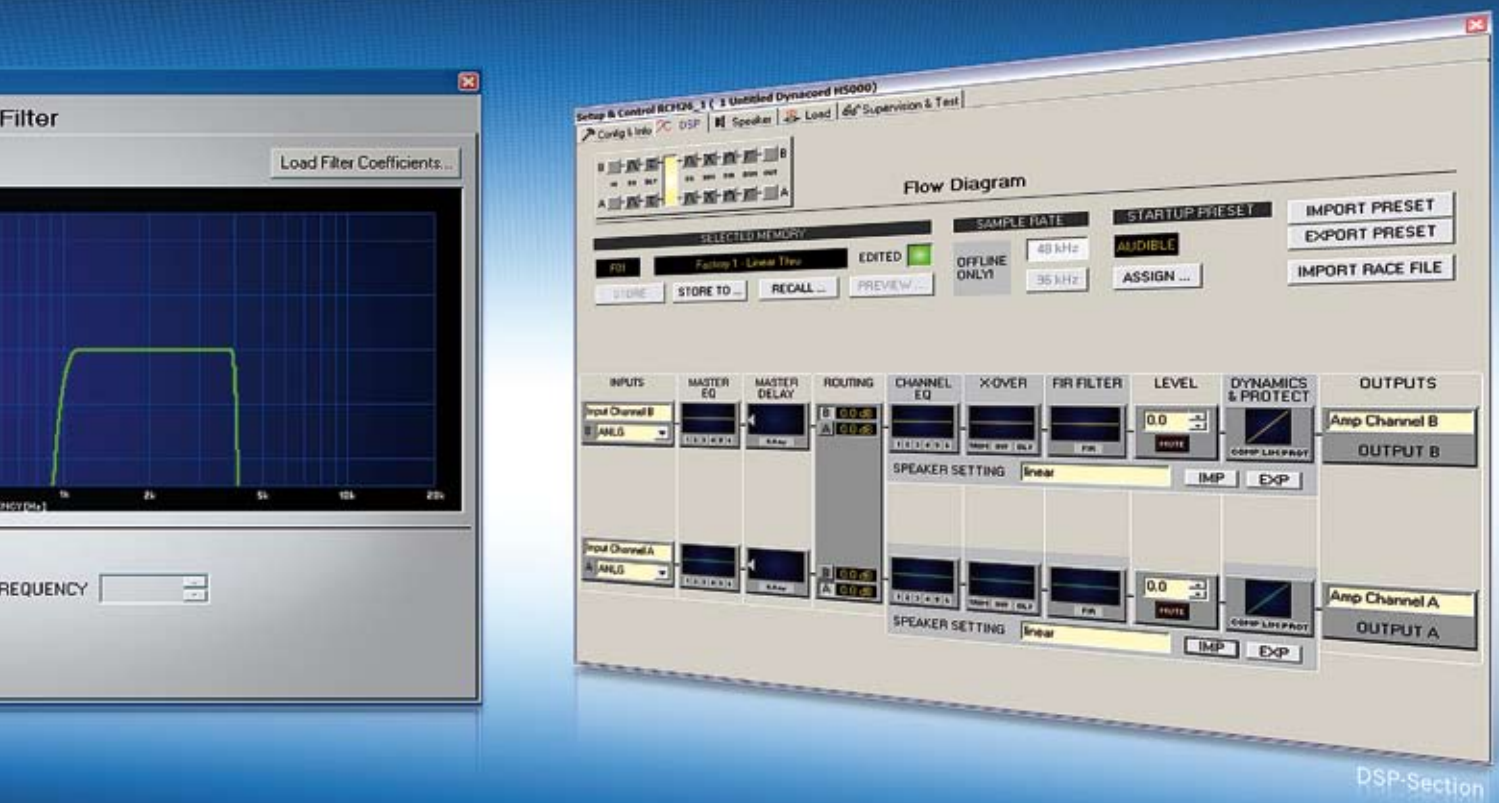
function allows you to measure comprehensively, and conduct a full examination of, a very large audio system at the push of a button.

Even in live performance, the connected load is monitored continuously. Any undershooting (short-circuit) or overshooting (interruption) of the set tolerance limits is automatically detected and reported immediately.

### FIR FILTERS

Although FIR filters require a massive amount of processing and are complex, they are realized in the RCM-26 in addition to the classical filtering and signal processing functions. Both linear-phase FIR filters and ,zero latency' FIR filters, which add no further delay to the time signals take to pass through the device, are available.

Users can create their own linear phase ,brick-wall X-over' and edit them in real time. For DYNACORD



loudspeaker cabinets and systems, factory presets are available with linear phase 'brick-wall' FIR crossovers. These provide users wishing to tune the system themselves with a completely linearized frequency and phase response upon which to build.

#### SYSTEM FREQUENCY RESPONSE IN DISPLAY

For DYNACORD loudspeaker cabinets, measurements of the frequency and phase response are already provided in the IRIS-Net. This data together with the filter, crossover and delay settings conducted in the RCM-26 can be displayed and taken into account by IRIS-Net. The superposition shows the actual frequency response of the loudspeaker cabinet.

#### REMOTE FUNCTIONS

Remote control of the power amplifier under IRIS-Net provides Power On / Standby switching and the programming of power-up sequences for the power amplifiers as well as level settings and the muting of

individual channels or channel groups. In the RCM-26, all parameters can be controlled in real time as well as stored in user memories, from which they can be retrieved and reloaded subsequently.

#### DSP FUNCTIONS

- **X-over:** Linkwitz-Riley, Butterworth, Bessel
- **FIR Filters:** zero latency processing, linear phase X-over
- **Master EQ:** 6 filters per channel; PEQ, lo-shelf, hi-shelf, hi-pass, lo-pass selectable
- **Channel EQ:** 6 filters per channel; PEQ, lo-shelf, hi-shelf, hi-pass, lo-pass, all-pass selectable
- **Master delay :** 2ms - 2000ms per channel
- **Channel delay:** speaker alignment
- **Dynamics:** compressor, limiter per channel
- **Protection:** Advanced Digital Voice Coil Protection algorithms
- **Others:** input routing, level, mute, polarity, sine and noise generators, VU meter

# Ultra Lightweight Premium Audio Performance.





**LX**  
Power Amplifiers

- LX 1600
- LX 2200
- LX 3000
- XA 4000

# LX Series

## ULTRA LIGHT WEIGHT POWER AMPLIFIERS

### ■ LX1600 • LX2200 • LX3000 ■ XA 4000

- high-efficiency Class-H design
- switching power supply
- extremely light and compact
- 30% dynamic headroom
- very high 2 ohm stability
- complete package of protective circuits
- dynamic audio limiter
- precise raster pots on front panel
- constant gain with 32dB

### SWITCHING POWER SUPPLY TECHNOLOGY

The combination of an analogue class-H design with a state-of-the-art switching power supply has made possible the creation of a professional power amplifier delivering up to 2 x 1500 watts into 4 ohms with excellent audio specifications but weighing only 8.7 kg. Even complex loads as low as 2 ohms can be driven safely. Amp racks containing several LX power amplifiers for active multi-way use are therefore ultra-compact and lightweight.

### CLASS - H TECHNOLOGY

With this technology, two different power supply rails are permanently available internally to the power

amplifier blocks. For most of the program material, the lower operating voltage is able to reproduce the audio signal flawlessly; however, as soon as there are dynamic peaks, the amplifier switches internally and at high speed to the higher supply voltage.

Since for long periods the power amplifier blocks are operating with the lower supply voltage, there is considerably less power dissipation than with conventional class AB power amplifiers, which also means considerably less waste heat.

### SAFETY CIRCUITS

The complete LX series is equipped with protections against overheating, overloading, short-circuits, DC and HF as well as a Back-EMF protection.

With the Soft Start system, the power outputs are switched on via a relay when a safe operational state has been reached and a power-up delay prevents the mains fuses being triggered.

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Straubing, Germany.









WERE THEY TO APPEAR IN A HIGH-END HI-FI MAGAZINE, THE MEASURED VALUES OF THE LX1600 WOULD NO DOUBT HAVE THE AUDIOPHILES DROOLING. FROM EVERY SINGLE DISCIPLINE IT'S EVIDENT THAT THE PEOPLE WORKING IN DYNACORD'S DEVELOPMENT DEPARTMENT IN STRAUBING ARE PERFECTIONISTS IN THE BEST SENSE OF THE WORD.

*LX 1600 Test in 'Production Partner' 11/2008*

#### **FRONT PANEL**

The dB-calibrated level controls are implemented as ultra-precise detent potentiometers that are recessed in the front panel to protect them from accidental contact. Power, Protect, Signal and Limit LEDs provide a quick overview of the operating status.

#### **REAR PANEL**

The electronically balanced XLR IN / OUT sockets are provided for direct operation with professional mixing consoles and signal processors. All the models in the LX series are designed for a Constant Gain of 32 dB. The power outputs for Channels A and B as well as the Bridged Out are on Speakon connectors.

The signal of Output B is additionally available on pins  $\pm 2$  of Output A, so that with 4-pin wiring a two-way system can be driven. A Ground Lift switch is also provided to separate the chassis ground from the signal ground in order to eliminate ground loop hum.

#### **DYNAMIC LIMITERS**

Dynamic limiters are general components in all DYNACORD power amplifiers. High-speed audio processors are continuously comparing the input signal to the output signal, and in the event of any non-linearity, the processors send control signals to the limiters, which operate dynamically upon the input level. As a result, the THD all the way up to 21 dBu is limited to an inaudible 1% max. at the output.

#### **LPN + LO-CUT**

The retrofittable NRS 90268 kit, which is available as an option for all LX power amplifiers, combines the LPN (low-pass notch) filter with a low-cut filter. These eliminate transient non-linearities in the low frequency range in small to medium-sized full-range speakers and thereby considerably extend the reproducible range at the bottom end. The acoustic result is bass reproduction with more punch and greater substance.



#### LX 1600

With an output rated at 2 x 1300 watts into 2 ohms and 2 x 800 watts into 4 ohms, this is the ideal power amplifier for small to medium-sized full-range cabinets and MF/HF components in active multi-way systems.



#### LX 2200

With a stable output of 2 x 1600 watts into 2 ohms and 2 x 1100 watts into 4 ohms, this is the ideal amplifier for professional multi-way components as well as medium-sized subwoofers in concert sound systems.



#### LX 3000

The flagship of the LX series delivers a mighty 2 x 2100 watts into 2 ohms and 2 x 1500 watts into 4 ohms and therefore has plenty of headroom for large subwoofer arrays.



#### XA 4000

Universally applicable system power amplifier for active 2-way systems. 1 x 1100 watts / 4 ohms (Lo) and 1 x 900 watts / 4 ohms (Hi). Crossover frequency 140 Hz



Superior Audio Performance,  
highest reliability and operational safety.



**CL**  
Power Amplifiers

- CL 800
- CL 1200
- CL 1600
- CL 2000





## CL Series

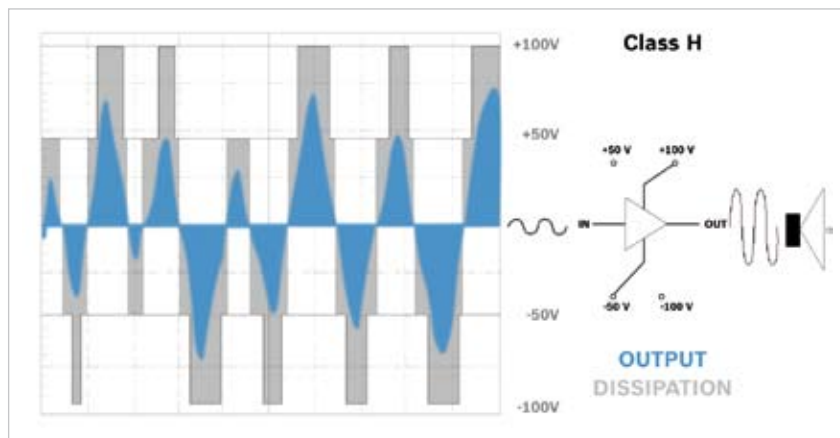
THOROUGHbred WORKHORSES  
FOR THE MOST DEMANDING AUDIO TASKS

### TECHNOLOGY

Through the use of optimized power supplies with toroidal transformers (on account of their low stray fields) and the intelligent application of class H technology (CL 800: class AB), headroom way above the declared nominal power has been achieved as well as a notable reduction in weight and waste heat. CL power amplifiers satisfy the extreme demands of life on the road and deliver between a nominal 2 x 400 watts and 2 x 1000 watts into 4 ohms. Even complex loads as low as 2 ohms can be driven very safely. Ranging in weight from only 13 kg to 18 kg, two or more CL power amplifiers can be combined in racks that remain easy to transport.

### CLASS-H TECHNOLOGY

With this technology, two different power supply rails are permanently available internally to the power amplifier blocks. For most of the program material, the lower operating voltage is able to reproduce the audio signal flawlessly; however, as soon as there are dynamic peaks, the amplifier switches internally and at high speed to the higher supply voltage.



Since for long periods the power amplifier blocks are operating with the lower supply voltage, there is considerably less power dissipation than with conventional class AB power amplifiers, which also means considerably less waste heat.



### FRONT PANEL

The dB-calibrated level controls are implemented as ultra-precise detent potentiometers that are recessed in the front panel to protect them from accidental contact. Power, Protect, Signal and Limit LEDs provide a quick overview of the operating status.



### REAR PANEL

The electronically balanced XLR IN / OUT sockets are provided for direct operation with professional mixing consoles and signal processors. All the models in the CL series are designed for a Constant Gain of 32 dB.

The power outputs for Channels A and B are on Speakon connectors. The signal of Output B is additionally available on pins  $\pm 2$  of Output A, so that with 4-pin wiring a two-way system can be driven. A Ground Lift switch is also provided to separate the chassis ground from the signal ground in order to eliminate ground loop hum.



### SAFETY CIRCUITS

The complete CL series is equipped with protections against overheating, overloading, short-circuits, DC and HF as well as a Back-EMF protection. With the Soft Start system, the power outputs are switched on via a relay when a safe operational state has been reached and a power-up delay prevents the mains fuses being activated.

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Straubing, Germany.



### LPN + LO-CUT

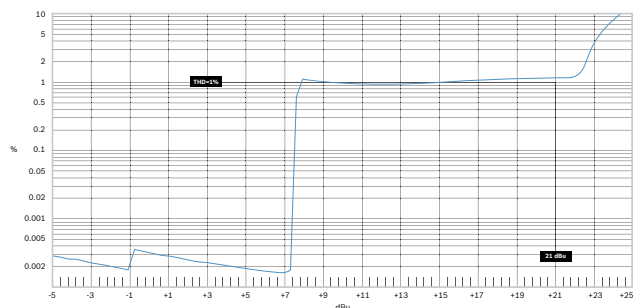
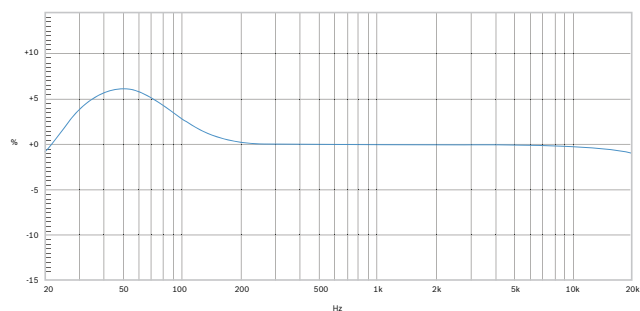
The retrofittable NRS 90268 kit, which is available as an option for all CL power amplifiers, combines the patented LPN (low-pass notch) filter with a low-cut filter.

These eliminate transient non-linearity in the low frequency range in small to medium-sized full-range speakers and thereby considerably extend the reproducible range at the bottom end. The acoustic result is bass reproduction with more punch and greater substance.

### DYNAMIC LIMITERS

Dynamic limiters are general components in all DYNACORD power amplifiers. High-speed audio processors are continuously comparing the input signal to the output signal, and in the event of any non-linearity, the processors send control signals to the limiters, which operate dynamically upon the input level.

As a result, the THD all the way up to 21 dBu is limited to an inaudible 1% at the output.



### CL 800

Rated at 2 x 600 watts into 2 ohms and 2 x 400 watts into 4 ohms, the smallest power amplifier in the CL series, which uses class AB technology, weighs in at a mere 13 kg and is therefore the ideal amp for fairly small full-range cabinets.



### CL 1200

Delivering a reliable 2 x 900 watts into 2 ohms and 2 x 600 watts into 4 ohms, this is the ideal amplifier for a wide variety of full-range cabinets and MF/HF components in multi-way systems.



### CL 1600

Rated at 2 x 1100 watts into 2 ohms and 2 x 800 watts into 4 ohms, this amplifier is ideal for use with professional full-range cabinets and also passive TOP/SUB combinations.



### CL 2000

The flagship of the CL series delivers a beefy 2 x 1400 watts into 2 ohms and 2 x 1000 watts into 4 ohms, whilst weighing a mere 18 kg. Ideal for driving large subwoofer arrays as well as full-range and MID-HIGH components with high power handling.



Stable power output and a high efficiency factor on the high performance level.

 **DYNACORD**

**SL 1200**

STANDARD PRECISION POWER AMPLIFIER

2x120 WATT

**SL**  
Power Amplifiers

- SL 900
- SL 1200
- SL 1800
- SL 2400



■ **Solid DYNACORD technology for universal application at highly competitive prices was the maxims for the development of the SL series of power amplifiers.**

They offer high, stable power output and a high efficiency factor on the high performance level and are therefore the ideal choice for driving a multitude of mobile and club systems, such as e.g. loudspeakers of the D-Lite, VariLine or Forum Line families.

SL series power amplifiers are equipped with protection against overheating, overload, short-circuits, high frequencies and DC at the output.

Damage to the end transistors through the feedback of electrical energy is prevented by the back EMF protective circuitry.

When powering up, a relay delays the switching on of the power outputs. In addition, a power-up current limiter prevents the blowing of the mains fuses.

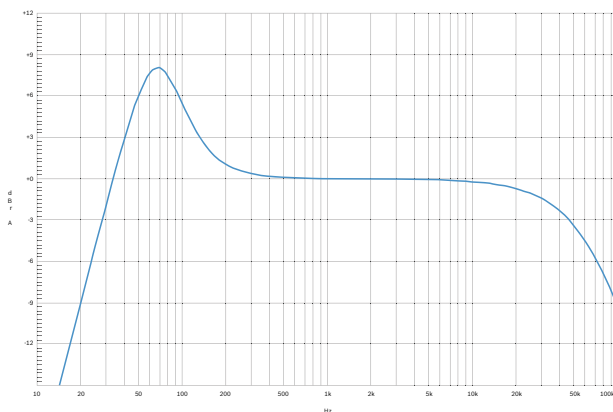
Fast audio processors continuously compare the input and output signals. In the event of any non-linearity, the processors send control signals to the limiters, which dynamically reduce the input gain of the power amplifier.

# SL Series

SOLID ALL-ROUNDERS AT A COMPETITIVE PRICE



The level controls on the front are calibrated in dB and recessed into the front panel to guard against mechanical damage. The easy-to-read LED display with its Power, Protect, Signal and Limit indicators offers a quick overview of the operating state of the power amplifiers.



## LPN-FILTER

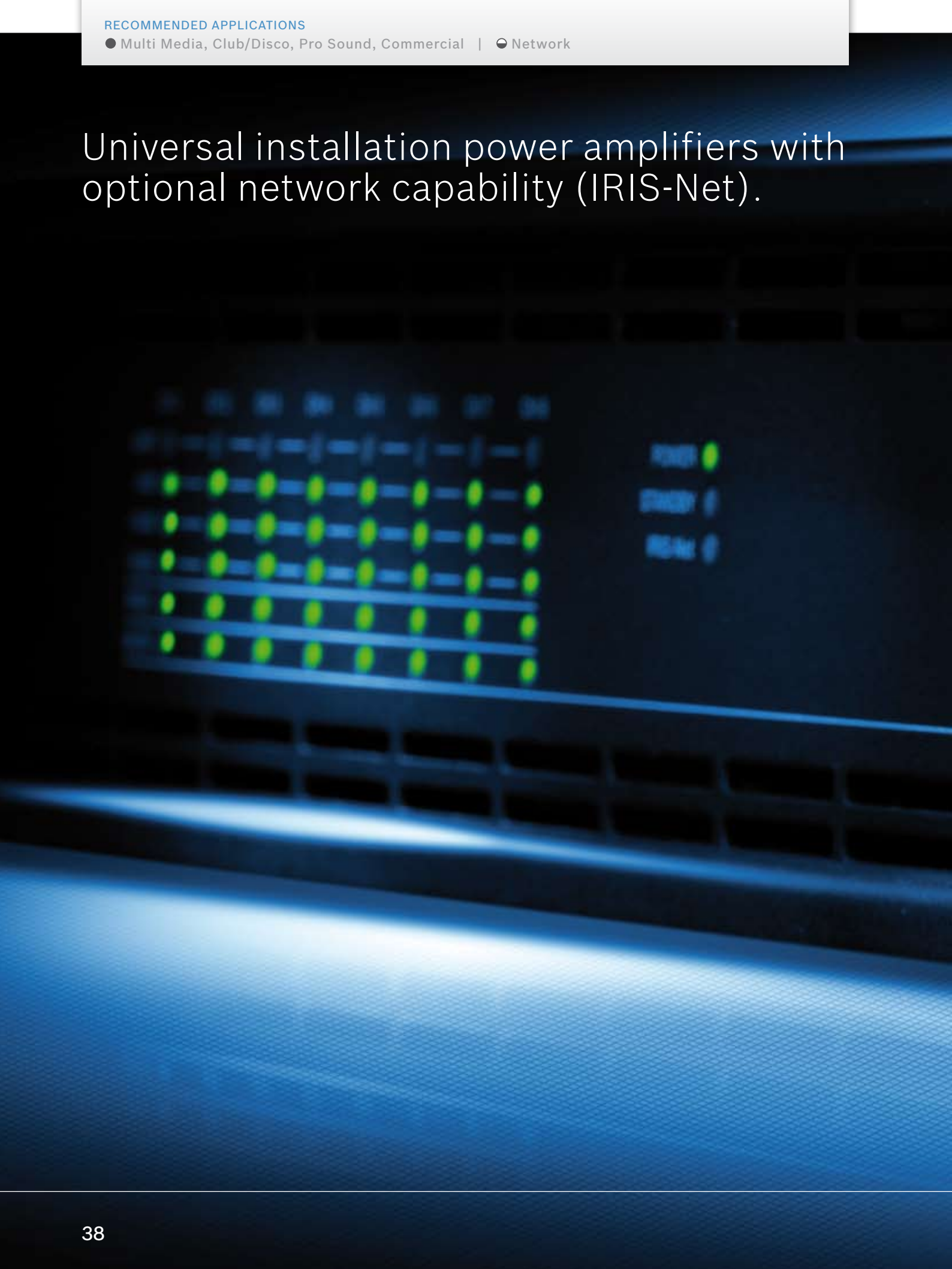
The switchable Low-Pass Notch (LPN) filter is a typical DYNACORD special feature. This filter circuitry corrects the frequency response and optimizes the

transient behaviour of loudspeakers. The resulting dynamization cannot be achieved with any graphic or parametric equalizer or 'bass booster', since the way the LPN operates is based to an important extent upon a dynamic optimization of the slew rate of the signal. The switch allows you to compare the acoustic difference with and without the LPN. The whole signal becomes much more powerful and voluminous. The effect is particularly noticeable with small to medium-sized full-range loudspeakers but also with applications featuring subwoofers.

The electronically balanced XLR IN / OUT sockets are provided for direct operation with professional mixing consoles and signal processors. All the models in the SL series are designed for a Constant Gain of 32 dB. The power outputs for Channels A and B as well as the Bridged Out are on Speakon connectors. The signal of Output B is additionally available on pins  $\pm 2$  of Output A, so that with 4-pin wiring a two-way system can be driven. A Ground Lift switch is also provided to separate the chassis ground from the signal ground in order to eliminate ground loop hum.

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Zhuhai, China

Universal installation power amplifiers with optional network capability (IRIS-Net).



POWER



 **DYNACORD**

**DSA 8805**

8x500 WATTS POWER AMPLIFIER

**DSA**  
Power Amplifiers

- DSA 8405
- DSA 8410
- DSA 8805
- DSA 8204
- DSA 8206
- DSA 8209
- DSA 8212

# DSA Series - Multi-Channel

CAN DRIVE ANY LOAD BETWEEN 2 AND 10 OHMS WITH THEIR RATED MAXIMUM OUTPUTS OF 500 W AND 1000 W RESPECTIVELY PER CHANNEL OR DIRECTLY DRIVE 70 V<sub>RMS</sub> OR 100 V<sub>RMS</sub> LOUDSPEAKER LINES.



**Innovative DYNACORD technology, exemplary flexibility, very high output with an extremely good efficiency and integration into IRIS-Net networks: a thumbnail sketch of the DSA multi-channel power amplifiers that provide a multitude of solutions to the problems posed by fixed installations.**

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Straubing, Germany.

The multi-channel DSA 8405 / 8410 / 8805 power amplifiers are a milestone in the design and production of high-powered power amplifiers. The unique combination of Class D power amplifier blocks and synchronized switching power supplies offers to this date unmatched power density combined with excellent audio performance.

OUTPUT	
<input type="checkbox"/>	<input type="checkbox"/> 2Ω : 500W/2Ω, VLD
<input type="checkbox"/>	<input type="checkbox"/> 4Ω : 500W/4Ω, 250W/8Ω
<input type="checkbox"/>	<input type="checkbox"/> 70V : 500W/10Ω
<input type="checkbox"/>	<input type="checkbox"/> 100V : 500W/20Ω

### UNIQUE FLEXIBILITY THROUGH VLD

The ability to switch individually the mode of each power amp channel helps the DSA multi-channel power amplifiers to achieve a degree of flexibility never before possible. In low impedance operation (2 Ω, 4 Ω, 8 Ω), each channel can drive up to four 8-ohm loudspeaker cabinets. The output channels can also be paired in bridged mode.





Depending upon the application, each channel can be switched individually even in high-impedance mode (HZ) in order to drive 70 Vrms or 100 Vrms loudspeaker lines directly without an output transformer (Direct Drive).

The power output by the DSA multi-channel power amplifiers is (along with its thermal capacity) limited only by their maximum output voltage and maximum output current, which means they can drive any load between 2 and 10 ohms with their rated maximum outputs of 500 W and 1000 W respectively per channel.

**A corresponding encoder-circuit is provided on the rear panel. In addition, through VLD (Variable Load Drive) in combination with a RCM-810 remote control module, it is possible to define freely which output power should be made available at which load in the frame described above in the channel in question: e.g. Channel A = 350 W into 2.6 Ω; Channel B = 500 W into 8 Ω; Channel C = 200 W / 100V etc.**

The fact that an output transformer has been dispensed with the highly efficient Class-D power amplifiers and switching power supply yields an extremely attractive, environment- and resource sparing amplifier. For applications involving

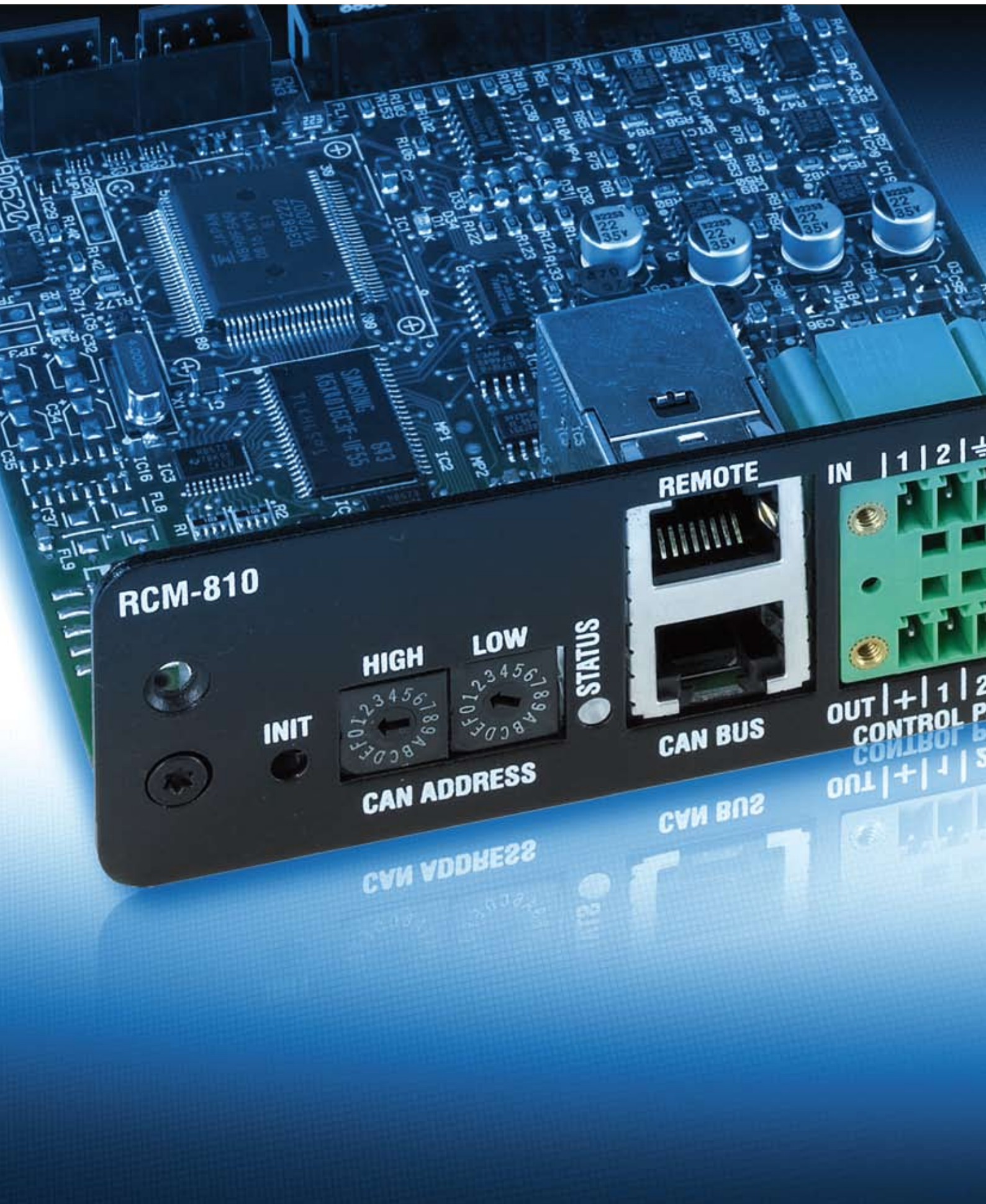
mandatory galvanic separation of the connected loudspeakers in accordance with EN 60849 and IEC 60364 separate transformer modules are available, optionally.

Input level controls on the rear panel as well as LED meters and control indicators on the front panel offer a high degree of user comfort. It goes without saying that all protective circuits and dynamic limiters (as is the case with in all DYNACORD power amplifiers) are available in every channel. Using the ON DELAY selector switch on the rear panel of the power amplifier, you can set the interval of time by which the switching on process should be delayed. In Standby mode, the power consumption of the device is reduced to a minimum. Standby mode can be activated via IRIS-Net or the POWER REMOTE socket.

The Phoenix inputs marked INPUT are electronically balanced. Phoenix connectors are also provided for the power outputs.

The POWER REMOTE connector makes the task of remote controlling the power amplifier as well as switching it on and off simple. For further remote-supervision and -control possibilities and integration into IRIS-Net networks, an optional remote control module (RCM-810) is available.







## RCM-810

### DIGITAL CONTROLLER MODULE

■ **The RCM-810 remote control module is a digital controller module for PA and fixed installation and permits the integration of DSA amplifiers in a remote control network with up to 250 devices.**

With it, a complete PA system can be controlled and supervised from one or several PCs with the help of IRIS-Net software. Data on all operating states – e.g. switch-on status, temperature, response of protective circuits, load impedance etc. – is collected and displayed centrally in IRIS-Net.

This makes it possible to react with targeted intervention should critical operating states ever occur. It is also possible to program an automatic reaction in the event of certain threshold limits being under- or overstepped. All parameters (e.g. Power On/Off, Mute etc.)

can be controlled in real time and saved in the amplifier. Independently of network control, all the settings are saved in the event of a breakdown. The RCM-810 also offers a Control Port with freely programmable control inputs and outputs.

Switches can be connected to the control inputs (GPIs). Within IRIS-Net, you can program any desired logic functions for the inputs.

External elements can be connected to the control outputs (GPOs) in order, for example, to signal particular states. As a consequence, an amplifier equipped with an RCM-810 module satisfies the highest safety requirements.

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Straubing, Germany



## DSA Series - Dual-Channel

AMPLIFIERS THAT PROVIDE A MULTITUDE OF HIGHLY ECONOMIC SOLUTIONS TO THE PROBLEMS POSED BY FIXED INSTALLATIONS.



**■ Solid DYNACORD technology for fixed installations at very competitive prices was the maxims for the development of the DSA power amplifier series.**

They offer a very high, stable output with high efficiency at a high performance level. DSA power amplifiers are therefore the ideal choice for typical fixed installation applications.

They are protected against overheating, short circuit and both high frequencies and DC at the output. Damage to the end transistors through the feedback of electrical energy is prevented by the back EMF protective circuitry. During a soft start, a relay delays the switching on of the power outputs.

In addition, a power-up current limiter prevents the blowing of the mains fuses. Fast audio processors continuously compare the input and output signals. In the event of any non-linearity, the processors send control signals to the limiters, which dynamically reduce the input gain of the power amplifier.

Input level controls on the rear panel and level and control displays on the front panel offer a high degree of user comfort, and a quick overview of the operating state of the power amplifiers is provided by the easily read LED display with its Power, Protect, Signal Display and Limit indicators.

A switchable high-pass filter (HPF) (50 Hz, 18 dB/oct) can be used to suppress low frequency signals,

which otherwise could lead to saturation of the transformers when output transformers are connected. A Ground Lift switch is also provided to separate the chassis ground from the signal ground in order to eliminate ground loop hum.

The POWER REMOTE connector makes the task of remote controlling the power amplifier as well as switching it on and off simple.

For further remote-supervision and -control possibilities and integration into IRIS-Net networks, an optional remote control module (RCM-810) is available. (see pages 42-43)

German engineering. Manufactured in accordance with the Bosch Production System (BPS) in Zhuhai, China.

Power amplifiers for challenging sound reinforcement.





## PCL Series

- PCL 1125T
- PCL 1225T
- PCL 1240T
- PCL 1245
- PCL 1415

# PCL Series

## CONTRACTOR LINE POWER AMPLIFIERS



■ **With the PCL series, DYNACORD is adding to its extensive power amplifier range in the fixed installation segment a number of models with fairly low to medium output levels.**

The power amplifiers are particularly designed for challenging sound reinforcement tasks, background music / paging and public address system installations. Long term reliability, operational safety, flexibility and versatility are guaranteed.

The five models in the PCL series offer a variety of system design and implementation possibilities. The PCL 1225T and PCL 1240T are equipped with distortionfree high performance output transformers and low-impedance outputs

at 8 / 4 ohms. Just like the PCL 1125T, they also provide floating loudspeaker outputs for 50 V, 70 V and 100 V installations. PCL 1245 and PCL 1415 are low-impedance amplifiers with no output transformers. Premium Phoenix style screw-lock connectors ensure a more secure connection of audio signal and speaker cables. The independent rear level controls allow setting the according power amp channel's overall amplification.

All PCL power amps feature different hi-pass filters with switch selectable cut-off frequency to attenuate unwanted low frequency signals. Provided by each of the PARAMUS amplifier types are numerous protection circuits (short circuit, thermal overload, power on delay,

peak current limiters, to name a few), which not only prevent the power amplifier itself from being damaged but protect the connected loudspeaker systems as well. All PCL models offer excellent headroom for a wide dynamic range on music signals.

They are equipped with voltage limiters to protect the loudspeaker outputs against high distortion resulting in an output signal which never exceeds a THD (total harmonic distortion) of 1 %.

Multi-stage cooling fans additionally guarantee absolute operational reliability even at increased operating temperatures. German engineering. Manufactured in Asia.





### Features

- five models from 160 W to 450 W per channel; 4 ohm or 50 / 70 / 100 V
- compact 2U housing
- Phoenix input plugs for simple setting-up
- single block plug for all output signals
- bridged mode for all multi-channel models
- switchable high-pass filter in each channel; 50 Hz or 300 Hz
- level controller for each channel on the rear panel
- front-to-rear cooling
- numerous protective circuits



PROMATRIX<sup>®</sup>  
SYSTEM

DYNAC

1

LIMIT  
SIGNAL

OUTPUT

PROTECT  
GROUND

PROMATRIX<sup>®</sup>  
SYSTEM

DYNAC

1 2

LIMIT  
SIGNAL

OUTPUT

PROTECT  
GROUND

Fixed installation power amplifiers with emergency power capability and IRIS-Net integration.

DYNAC

CORD® DPA 8150

STATUS

ACTIVE

FAULT

POWER

STANDBY

ON

CORD® DPA 8225

STATUS

ACTIVE

FAULT

POWER

STANDBY

ON

CORD® DPA 8412

## DPA Series

- DPA 4120
- DPA 4140
- DPA 4410
- DPA 4411
- DPA 4245
- DPA 4260
- DPA 8150
- DPA 8225
- DPA 8412

# DPA Series

FINEST AUDIO QUALITY FOR ALARM SOUND REINFORCEMENT



**Power amplifiers of the highest quality and legendary reliability have for decades been a core element of the DYNACORD fixed installation range.**

Thousands upon thousands of DPA 4000 series power amplifiers for example are proving their worth every day in countless installations throughout the globe—invariably leading in terms of performance, equipment and flexibility and always conforming to the safety regulations in force such as EN 60849, DIN VDE 0828. Naturally these power amplifiers offer ideal solutions for networking, remote supervision, remote control, emergency power and all the other imperatives of life safety projects.

The power amplifiers of the DPA 4000 series can be operated either from the mains or from an emergency power supply (e.g. battery). Power consumption is minimal in Stand By mode—as little as 2.5 mA in some cases. All the devices in the series boast outstanding audio performance, with signal-to-noise ratios, for example, in excess of 100 dB.

The DPA 4120 / DPA 4140 power amplifiers can be fitted with either the standard input module or a remote control module. Thus equipped, the amplifiers can be both controlled and supervised remotely.

Thanks to the intelligent output circuitry of the DPA 4411 and DPA 4410, the power outputs can be configured individually to deliver 4 x 100 W, 2 x 200 W or 1 x 200 W plus 2 x 100 W, according to choice.

For power amplifiers to be used also in alarm sound reinforcement systems it is necessary for them to report any malfunctions. The flawless functioning of power amplifiers in the DPA series is therefore permanently supervised.

German development. Manufactured using the BPS (Bosch Production System) in Straubing, Germany.

#### Features DPA 4000 Series:

- 6 models with 4 x 100 W, 1 x 200 W, 1 x 400 W, 2 x 450 W and 2 x 600 W
- 4 ohm or 50 / 70 / 100V
- Mains and 24V operation
- Power up current limiting
- Protective circuits
- Status LEDs



■ **The new models of the DPA 8000 series are based on highly efficient Class D platforms and offer in addition to outstanding audio performance features such as integrated automatic breakdown switchover, integrated electronics for the connection of multiple loudspeaker lines per amplifier channel, an additional audio input, etc.**

The Promatrix 8000 system, to which the DPA 8000 amplifiers also belong, sets new standards in the integration of event, information and evacuation sound reinforcement.

In the development of the DPA 8000 series, the emphasis was upon the following primary characteristics: smaller dimensions coupled with greater power, lower power consumption, higher integration of functions, and better audio performance. The outcome is a series of models that meet the highest demands of modern sound reinforce-

ment systems including evacuation conformity. With a signal-to-noise ratio of over 102 dB, the amplifiers can be used without compromise for pro sound applications.

Thanks to the permanent integrated supervision, faults not only in the amplifiers themselves but also in the loudspeaker lines connected are detected and reported immediately. For the supervision of the loudspeaker lines, a choice is offered of various methods, which can be used singly or in combination.

The total power of 500 W in two rack units is achieved with minimal power dissipation, which means savings, too, on external air conditioning.

Each of the amplifiers possesses an additional audio input for the playing of background music or use as an emergency input. For the connection of multiple loudspeaker lines to a single amplifier channel,

the control electronics are already integrated into the amplifier and can be extended through the DCS 400 modular system.










It goes without saying that power can be drawn either from the mains or a battery and that all devices offer power up current limiting as well as additional protective circuitry.

German development. Manufactured using the BPS (Bosch Production System) in Straubing, Germany.

#### Features DPA 8000 Series:

- 3 models with 1 x 500 W, 2 x 250 W, 4 x 125 W
- Mains and 24V battery operation
- Lower power consumption
- Compact 2U format
- Power up current limiting
- Integrated breakdown switchover
- Integrated zone switching
- Protective circuits
- Status LEDs

# Recommended Products / Application

	Mobile Audio			Fixed Installation					
									
	<b>Live Music</b>	<b>Concert Sound</b>	<b>Touring</b>	<b>Multi Media</b>	<b>Club/Disco</b>	<b>ProSound</b>	<b>Network</b>	<b>Commercial</b>	<b>Life Safety</b>
	Club-Gigs Dance Bands Mobile DJ	Corporate Rental Top 40 Events	Large Live Productions Small - Medium Festival	Boardrooms Conferencing Hotels	Clubs Lounges Discotheques Poolbars Casinos	Theaters Concert Halls HOW Stadiums Cruise Liners Multifunctional Halls	Conference Centers Hotels Business Buildings Arenas Expo-Halls	Shops Malls Bistros BGM	Voice-EVAC Industry Railway Offshore
PowerH Series		●	●		●	●	●		
LX Series	●	●	●			◐			
CL Series	●	◐			◐			◐	
SL Series	●	○						○	
DSA Series <small>Multi Channel Dual Channel</small>				●	●	●	◐	●	
PCL Series								●	
DPA Series <small>4000 Series 8000 Series</small>				○		◐	●	○	●

Perfect Solution    
  Excellent Choice    
  Suitable

*In our multimedia world, professional audio systems are playing an ever more important role. For this, power amplifiers are needed the characteristics and properties of which are tailored precisely to the application in question.*

*The spectrum of these requirements—from live music to fixed installation—has an extremely wide bandwidth and extends from very high power output combined with minimum weight to remote supervision and network capability. DYNACORD's extensive power amplifier portfolio offers an ideal and cost-effective solution for every field of application.*

# PowerH Series

## TECHNICAL SPECIFICATIONS



General	H 2500			H 5000		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%	2000 W	1450 W	850 W	3500 W	2500 W	1500 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	1200 W	600 W	-	2100 W	1050 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	2400 W	1700 W	940 W	4500 W	3200 W	1800 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	2050 W	1600 W	900 W	4100 W	2700 W	1600 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	3800 W	2900 W	-	7000 W	5000 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	95 V			125 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 50 kHz					
<b>Voltage Gain</b> ref. 1 kHz	39 dB / 35 dB / 32 dB (switchable)			41dB / 35 dB / 32 dB (switchable)		
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	0 dBu / +4 dBu / +7 dBu (switchable)			0 dBu / +6 dBu / +9 dBu (switchable)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.05 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.02 %					
<b>Max. Input Level</b>	+22 dBu (9,76 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	< 10 Hz ... 30 kHz (± 1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> ,1kHz	> 400					
<b>Slew Rate</b>	30 V/μs			35V/μs		
<b>Signal to Noise Ratio Amplifier</b> A-weighted, 32 dB constant gain	109 dB			111 dB		
<b>Output Noise</b> , A-weighted	< -70 dBu					
<b>Output Stage Topology</b>	Class-H Grounded Bridge					
<b>Power Requirements</b>	100 V - 240 V, 50 Hz - 60 Hz; 100 V, 50 Hz - 60 Hz					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	1000 W			1450 W		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Short Circuit, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on Delay, Mains Circuit Breaker Protection, Mains Over / Undervoltage Protection					
<b>Cooling</b>	Front-to-Rear, 5-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD)</b> , mm	483 x 88.1 x 498					
<b>Weight</b>	14.2 kg (31.1 lbs)			14.5 kg (32.0 lbs)		

*Amplifier at rated conditions, both channels driven with 8 Ω loads, unless otherwise specified*

# Xa 4000

## TECHNICAL SPECIFICATIONS

General	SUB			TOP		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , THD=1%, 80Hz SUB, 1 kHz TOP, Single Channel	1800 W	1100 W	600 W	1600 W	900 W	500 W
<b>Rated Output Power</b> , THD <0.1%, 20 Hz-140 Hz SUB, 140 Hz-20 kHz TOP Single Channel	-	1000 W	500 W	-	800 W	400 W
<b>Maximum RMS Voltage Swing</b> , THD=1%, 80 Hz SUB, 1 kHz TOP	78 V					
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 50 kHz					
<b>Voltage Gain</b> ref. 1 kHz	37.3 dB					
<b>Input Sensitivity</b> at rated output power, 1 kHz	0 dBu (0.775 V rms)					
<b>THD</b> at rated output power, MBW=80kHz, 1 kHz	< 0.05 %					
<b>Max. Input Level</b>	+22 dBu (9.76 Vrms)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> ,1kHz	> 300					
<b>Slew Rate</b>	30 V/μs					
<b>Signal to Noise Ratio</b> , A-weighted	102 dB					
<b>Output Stage Topology</b>	Class-H					
<b>Power Requirements</b>	240 V, 230 V, 220 V, 120 V or 100 V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	850 W					
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 384					
<b>Weight</b>	8.25 kg (18.2 lbs)					

*Optional Accessories:*

Rear Rackmount 15.5": D112 930 (RMS15-CL)

Rear Rackmount 18.0": D112 933 (RMS18-CL)

Xa 4000





# LX Series

## TECHNICAL SPECIFICATIONS



General	LX 1600			LX 2200			LX 3000		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%	1300 W	800 W	500 W	1600 W	1100 W	600 W	2100 W	1500 W	900 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	700 W	350 W	-	900 W	450 W	-	1200 W	600 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	2200 W	1200 W	625 W	2600 W	1400 W	720 W	2900 W	1800 W	1000 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	1700 W	1000 W	550 W	2100 W	1300 W	660 W	2600 W	1700 W	950 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	2600 W	1600 W	-	3200 W	2200 W	-	4200 W	3000 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	72 V			78 V			95 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 60 kHz								
<b>Voltage Gain</b> ref. 1 kHz	32 dB								
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+4.7 dBu (1.33 V rms)			+5.8 dBu (1.51 V rms)			+7.0 dBu (1.74 V rms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %								
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.02 %								
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.05 %								
<b>Max. Input Level</b>	+22 dBu (9.76 Vrms)								
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB								
<b>Frequency Response</b> , ref. 1 kHz	15 Hz ... 40 kHz (-1dB)								
<b>Input Impedance</b> , active balanced	20 kΩ								
<b>Damping Factor</b> ,1kHz	> 300								
<b>Slew Rate</b>	30 V/μs			35V/μs			38V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	107 dB			107 dB			108 dB		
<b>Output Stage Topology</b>	Class-H								
<b>Power Requirements</b>	100 V, 120V, 220V, 230V, 240V, 50 Hz... 60 Hz (factory configured)								
<b>Power Consumption</b> at 1/8 maxi- mum output power @ 4 Ω	625 W			850 W			1070 W		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay								
<b>Cooling</b>	Front-to-Rear, 3-stage-fans								
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)								
<b>Safety Class</b>	I								
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 384								
<b>Weight</b>	7.8 kg (17.2 lbs)			8.15 kg (18.0 lbs)			8.7 kg (19.2 lbs)		

*Optional Accessories:*

Rear Rackmount 15.5": D112 930 (RMS15-CL)

Rear Rackmount 18.0": D112 933 (RMS18-CL)

LPN + Lo-Cut Filter: D112963 (NRS 90268)

# CL Series

## TECHNICAL SPECIFICATIONS

General	CL 800			CL 1200		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%	600 W	400 W	240 W	900 W	600 W	350 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	300 W	150 W	-	500 W	250 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	1100 W	580 W	300 W	1450 W	850 W	450 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	800 W	480 W	270 W	1200 W	720 W	410 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	1200 W	800 W	-	1800 W	1200 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	50 V			62 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 60 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+1.15 dBu (0.88 V rms)			+3.2 dBu (1.12 V rms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.02 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.01 %					
<b>Max. Input Level</b>	+22 dBu (9,76 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	15 Hz ... 40 kHz (-1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	25 V/μs			30 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	103.5 dB			105.5 dB		
<b>Output Stage Topology</b>	Class-AB			Class-H		
<b>Power Requirements</b>	100 V, 120V, 220V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	600 W			500 W		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 386.8					
<b>Weight</b>	13.5 kg (29.8 lbs)			15 kg (33.0 lbs)		

*Optional Accessories:*

Rear Rackmount 15.5": D112 930 (NRS90262)

Rear Rackmount 18.0": D112 933 (NRS90264)

LPN + Lo-Cut Filter: D112963 (NRS 90268)



General	CL 1600			CL 2000		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%	1100 W	800 W	500 W	1500 W	1000 W	600 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	700 W	350 W	-	850 W	450 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	2200 W	1200 W	625 W	2700 W	1450 W	750 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	1500 W	950 W	550 W	1900 W	1150 W	650 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	2200 W	1600 W	-	3000 W	2000 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	72 V			80 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 60 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+4.7 dBu (1.33 V rms)			+5.5 dBu (1.46 V rms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.02 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.01 %					
<b>Max. Input Level</b>	+22 dBu (9.76 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	15 Hz ... 40 kHz (-1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	35 V/μs			35 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	107 dB			109 dB		
<b>Output Stage Topology</b>	Class-H					
<b>Power Requirements</b>	100 V, 120V, 220V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	660 W			725 W		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on Delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 386.8					
<b>Weight</b>	16 kg (35.3 lbs)			18.2 kg (39.7 lbs)		

*Optional Accessories:*

Rear Rackmount 15.5": D112 930 (NRS90262)

Rear Rackmount 18.0": D112 933 (NRS90264)

LPN + Lo-Cut Filter: D112963 (NRS 90268)

# SL Series

## TECHNICAL SPECIFICATIONS

General	SL 900			SL 1200		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, Dual Channel	650 W	450 W	270 W	900 W	600 W	380 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	400 W	200 W	-	500 W	250 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	1150 W	660 W	350 W	1700 W	950 W	480 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	850 W	540 W	310 W	1200 W	750 W	420 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	1300 W	900 W	-	1800 W	1200 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	55.3 V			65.1 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 30 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+2.2 dBu (1.0 V rms)			+3.1 dBu (1.11 V rms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.03 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.1 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.05 %					
<b>Max. Input Level</b>	+21 dBu (8.69 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	10 Hz ... 40 kHz (± 1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	25 V/μs			26 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	106 dB			107 dB		
<b>Output Noise</b> , A-weighted	< -71 dBu					
<b>Output Stage Topology</b>	Class-AB					
<b>Power Requirements</b>	100 V, 120V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	550 W			700 W		
<b>Mains Fuse</b>	240V / 230V: T10AH, 120V / 100V: T20AH			240V / 230V: T12AH, 120V / 100V: T25AH		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 421.5					
<b>Weight</b>	12.6 kg (27.8 lbs)			14.8 kg (32.6 lbs)		

*Optional Accesories:*

2-Way crossover, internal filter card, 24dB, LR

330Hz (NRS 90249), 500Hz (NRS 90250)

800Hz (NRS 90251), 1200Hz (NRS 90252)



General	SL 1800			SL 2400		
	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, Dual Channel	1250 W	900 W	550 W	1800 W	1200 W	750 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	800 W	400 W	-	1100 W	550 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	2450 W	1400 W	700 W	3400 W	1800 W	950 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	1700 W	1100 W	630 W	2400 W	1500 W	850 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	2800 W	1800 W	-	3600 W	2400 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	78.8 V			90.6 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 30 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+5.1 dBu (1.39 Vrms)			+6.6 dBu (1.66 Vrms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.03 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.1 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.05 %					
<b>Max. Input Level</b>	+21 dBu (8.69 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	10 Hz ... 40 kHz (± 1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	27 V/μs			30 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	109 dB			110 dB		
<b>Output Noise</b> , A-weighted	< -71 dBu					
<b>Output Stage Topology</b>	Class-H					
<b>Power Requirements</b>	100 V, 120V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	700 W			850 W		
<b>Mains Fuse</b>	240V / 230V: T15AH, 120V / 100V: T25AH			240V / 230V: T15AH, 120V / 100V: T30AH		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 421.5					
<b>Weight</b>	16.3 kg (35.9 lbs)			17.7 kg (39.0 lbs)		

*Optional Accessories:*

2-Way crossover, internal filter card, 24dB, LR  
 330Hz (NRS 90249), 500Hz (NRS 90250)  
 800Hz (NRS 90251), 1200Hz (NRS 90252)

# DSA Series - Multi-Channel

## TECHNICAL SPECIFICATIONS

General	DSA 8405					DSA 8805				
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	70 V / 10Ω	100 V / 20Ω	2 Ω	4 Ω	8 Ω	70 V / 10Ω	100 V / 20Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, 4 channels driven	500 W	500 W	250 W VLD:500 W	500 W	500 W	500 W	500 W	250 W VLD:500 W	500 W	500 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.3%, 4 channels driven	450 W	450 W	225 W VLD:450 W	450 W	450 W	450 W	450 W	225 W VLD:450 W	450 W	450 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	1000 W	1000 W	1000 W / 20 Ω	1000 W / 40 Ω	-	1000 W	1000 W	1000 W / 20 Ω	1000 W / 40 Ω
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	32 V	45 V		70 V	100 V	32 V	45 V		70 V	100 V
<b>Input Sensitivity</b> , rated power, 1 kHz	0.775 V (+0.0 dBu)	1.1 V (+3.0 dBu)		1.55 V (+6.0 dBu)		0.775 V (+0.0 dBu)	1.1 V (+3.0 dBu)		1.55 V (+6.0 dBu)	
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ rated load	10 Hz ... 25 kHz			50 Hz ... 25 kHz		10 Hz ... 25 kHz			50 Hz ... 25 kHz	
<b>Voltage Gain</b> ref. 1 kHz	32 dB		33 dB	36 dB		32 dB			33 dB	36 dB
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %									
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.05 %									
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.02 %									
<b>Max. Input Level</b>	+22 dBu (9.76 Vrms)									
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB									
<b>Frequency Response</b> , ref. 1 kHz, 8 Ω load	15 Hz ... 30 kHz (± 1dB)									
<b>Input Impedance</b> , active balanced	20 kΩ									
<b>Damping Factor</b> , 1kHz, 8 Ω	> 240									
<b>Slew Rate</b>	28 V/μs									
<b>Signal to Noise Ratio</b> , A-weighted	98 dB	100 dB	104 dB	106 dB	98 dB	100 dB	104 dB	106 dB	104 dB	106 dB
<b>Output Noise</b> , A-weighted	< -66 dBu	< -65 dBu	< -65 dBu	< -64 dBu	< -66 dBu	< -65 dBu	< -65 dBu	< -65 dBu	< -64 dBu	< -64 dBu
<b>Output Stage Topology</b>	Class-D									
<b>Power Requirements</b>	220-240V, 50-60 Hz or 120 V, 50-60 Hz or 100 V, 50-60 Hz									
<b>Power Consumption</b> at 1/8 maximum output	490 W					930 W				
<b>Protections</b>	Audio Limiters, High Temperature, DC, HF, Short Circuit, Peak Current Limiters, Inrush Current Limiters, Turn-on Delay, Mains Circuit Breaker Protection, Mains Over/Undervoltage Protection									
<b>Cooling</b>	Front-to-Rear, temperature controlled fans									
<b>Ambient Temperature Limits</b>	+5 °C...+40 °C (40 °F...105 °F)									
<b>Safety Class</b>	I									
<b>Dimensions (WxHxD), mm</b>	481 x 88.0 x 421									
<b>Weight</b>	11.1 kg (24.3 lbs)					13.9 kg (28.7 lbs)				



General	DSA 8410				
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	70 V / 5Ω	100 V / 10Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, 4 channels driven	1000 W	1000 W	500 W VLD:1000 W	1000 W	1000 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.3%, 4 channels driven	900 W	900 W	450 W VLD:900 W	900 W	900 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	2000 W	2000 W	2000 W / 10 Ω	2000 W / 20 Ω
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	45 V	63 V		70 V	100 V
<b>Input Sensitivity</b> , rated power, 1 kHz	1.1 V (+3.0 dBu)	1.55 V (+6.0 dBu)		1.55 V (+6.0 dBu)	
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ rated load	10 Hz ... 25 kHz			50 Hz ... 25 kHz	
<b>Voltage Gain</b> ref. 1 kHz	32 dB			33 dB	36 dB
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.05 %				
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.05 %				
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.02 %				
<b>Max. Input Level</b>	+22 dBu (9.76 Vrms)				
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB				
<b>Frequency Response</b> , ref. 1 kHz, 8 Ω load	15 Hz ... 30 kHz (± 1dB)				
<b>Input Impedance</b> , active balanced	20 kΩ				
<b>Damping Factor</b> , 1kHz, 8 Ω	> 240				
<b>Slew Rate</b>	28 V/μs				
<b>Signal to Noise Ratio</b> , A-weighted	101 dB	103 dB		104 dB	106 dB
<b>Output Noise</b> , A-weighted	< -66 dBu	< -65 dBu		< -65 dBu	< -64 dBu
<b>Output Stage Topology</b>	Class-D				
<b>Power Requirements</b>	220-240V, 50-60 Hz or 120 V, 50-60 Hz or 100 V, 50-60 Hz				
<b>Power Consumption</b> at 1/8 maximum output	840 W				
<b>Protections</b>	Audio Limiters, High Temperature, DC, HF, Short Circuit, Peak Current Limiters, Inrush Current Limiters, Turn-on Delay, Mains Circuit Breaker Protection, Mains Over/Undervoltage Protection				
<b>Cooling</b>	Front-to-Rear, temperature controlled fans				
<b>Ambient Temperature Limits</b>	+5 °C...+40 °C (40 °F...105 °F)				
<b>Safety Class</b>	I				
<b>Dimensions (WxHxD)</b> , mm	481 x 88.0 x 421				
<b>Weight</b>	11.1 kg (24.3 lbs)				

# DSA Series - Dual-Channel

## TECHNICAL SPECIFICATIONS

General	DSA 8204			DSA 8206		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, Dual Channel	650 W	450 W	270 W	900 W	600 W	380 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	400 W	200 W	-	500 W	250 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	1150 W	660 W	350 W	1700 W	950 W	480 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	850 W	540 W	310 W	1200 W	750 W	420 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	1300 W	900 W	-	1800 W	1200 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	55.3 V			65.1 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 30 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+2.2 dBu (1.0 V rms)			+3.1 dBu (1.11 V rms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.03 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.1 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.05 %					
<b>Max. Input Level</b>	+21 dBu (8.69 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	10 Hz ... 40 kHz (± 1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	25 V/μs			26 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	106 dB			107 dB		
<b>Output Noise</b> , A-weighted	< -71 dBu					
<b>Output Stage Topology</b>	Class-AB					
<b>Power Requirements</b>	100 V, 120V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	550 W			700 W		
<b>Mains Fuse</b>	240V / 230V: T10AH, 120V / 100V: T20AH			240V / 230V: T12AH, 120V / 100V: T25AH		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 421.5					
<b>Weight</b>	12.6 kg (27.8 lbs)			14.8 kg (32.6 lbs)		
<b>Remote Power On</b>	Power remote via switch, delay time selectable					
<b>Signal Processing</b>	Lo-Cut 50Hz / 18dB, switchable					

*Optional Accessories:*  
 2-Way crossover, internal filter card, 24dB, LR  
 330Hz (NRS 90249), 500Hz (NRS 90250)  
 800Hz (NRS 90251), 1200Hz (NRS 90252)





General	DSA 8209			DSA 8212		
<b>Load Impedance</b>	2 Ω	4 Ω	8 Ω	2 Ω	4 Ω	8 Ω
<b>Maximum Midband Output Power</b> , 1 kHz, THD=1%, Dual Channel	1250 W	900 W	550 W	1800 W	1200 W	750 W
<b>Rated Output Power</b> , 20 Hz ... 20 kHz, THD <0.1%	-	800 W	400 W	-	1100 W	550 W
<b>Max. Single Channel Output Power</b> Dynamic-Headroom, IHF-A	2450 W	1400 W	700 W	3400 W	1800 W	950 W
<b>Max. Single Channel Output Power</b> Continuous, 1kHz	1700 W	1100 W	630 W	2400 W	1500 W	850 W
<b>Maximum Bridged Output Power</b> 1 kHz, THD=1%	-	2800 W	1800 W	-	3600 W	2400 W
<b>Maximum RMS Voltage Swing</b> 1 kHz, THD=1%	78.8 V			90.6 V		
<b>Power Bandwidth</b> , THD=1%, ref. 1kHz, half power @ 4Ω	10 Hz ... 30 kHz					
<b>Voltage Gain</b> ref. 1 kHz	32 dB					
<b>Input Sensitivity</b> at rated output power @ 8Ω, 1 kHz	+5.1 dBu (1.39 Vrms)			+6.6 dBu (1.66 Vrms)		
<b>THD</b> at rated output power MBW=80kHz, 1 kHz	< 0.03 %					
<b>IMD-SMPTE</b> , 60 Hz, 7 kHz	< 0.1 %					
<b>DIM 30</b> , 3.15 kHz, 15 kHz	< 0.05 %					
<b>Max. Input Level</b>	+21 dBu (8.69 Vrms)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz	10 Hz ... 40 kHz (± 1dB)					
<b>Input Impedance</b> , active balanced	20 kΩ					
<b>Damping Factor</b> , 1kHz	> 300					
<b>Slew Rate</b>	27 V/μs			30 V/μs		
<b>Signal to Noise Ratio</b> , A-weighted	109 dB			110 dB		
<b>Output Noise</b> , A-weighted	< -71 dBu					
<b>Output Stage Topology</b>	Class-H					
<b>Power Requirements</b>	100 V, 120V, 230V, 240V, 50 Hz... 60 Hz (factory configured)					
<b>Power Consumption</b> at 1/8 maximum output power @ 4 Ω	700 W			850 W		
<b>Mains Fuse</b>	240V / 230V: T15AH, 120V / 100V: T25AH			240V / 230V: T15AH, 120V / 100V: T30AH		
<b>Protections</b>	Audio limiters, High temperature, DC, HF, Back-EMF, Peak current limiters, Inrush current limiters, Turn-on delay					
<b>Cooling</b>	Front-to-Rear, 3-stage-fans					
<b>Ambient Temperature Limits</b>	+5°C ... +40°C (40°F ... 105°F)					
<b>Safety Class</b>	I					
<b>Dimensions (WxHxD), mm</b>	483 x 88.1 x 421.5					
<b>Weight</b>	16.3 kg (35.9 lbs)			17.7 kg (39.0 lbs)		
<b>Remote Power On</b>	Power remote via switch, delay time selectable					
<b>Signal Processing</b>	Lo-Cut 50Hz / 18dB, switchable					

*Optional Accessories:*  
 2-Way crossover, internal filter card, 24dB, LR  
 330Hz (NRS 90249), 500Hz (NRS 90250)  
 800Hz (NRS 90251), 1200Hz (NRS 90252)

# PCL Series

## TECHNICAL SPECIFICATIONS

PCL 1125T



General	PCL 1415		PCL 1245		PCL 1240T				
<b>Load Impedance</b>	8 Ω	4 Ω	8 Ω	4 Ω	8 Ω	4 Ω	100 V	70 V	50 V
<b>Max. Midband Output</b> (THD < 0.2 %, 20 Hz...20 kHz)	100 W	160 W	300 W	480 W	215 W	430 W	430 W		
<b>Rated Output Power</b> (THD < 0.2 %, 20 Hz...20 kHz)	75 W	150 W	225 W	450 W	200 W	400 W	400 W		
<b>Channels</b>	4		2		2				
<b>Max. RMS Voltage Swing</b> (THD = 1 %, 1 kHz)	32.1 V		44.7 V		44.7 V		117 V	82 V	59 V
<b>Voltage Gain</b> (at 1 kHz)	30 dB		34.3 dB		34.3 dB		42.2 dB	39.1 dB	36.2 dB
<b>Power Handling</b> (at 1/8 max. output power, limited pink)	-	385 W	-	530 W	-	-	545 W	-	-
<b>Input Sensitivity</b> (at ROP or Voltage, 1 kHz)	0 dBu (775 mV)								
<b>THD</b> (MBW = 80 kHz, 1 kHz)	< 0.1 %								
<b>Frequency Response</b> (-1 dB, ref. 1 kHz)	< 10 Hz – 40 kHz				65 Hz – 40 kHz				
<b>Input Impedance</b> (20 Hz...20 kHz symmetr.)	> 20 kΩ								
<b>Damping Factor</b> (at 100 Hz / 1 kHz, 4 Ω)	> 250				> 250		-		
<b>Signal to Noise Ratio S/N</b> (A-weighted)	101 dB		104 dB		103 dB				
<b>Power Requirements</b>	230 V / 50 Hz – 60 Hz								
<b>Protection</b>	audio limiters, thermal overload, peak current limiters, power-on delay								
<b>Cooling</b>	front to rear								
<b>Safety Class</b>	I								
<b>Dimensions (WxD), mm</b>	483 x 88 x 405 mm, 19" / 2 HU								
<b>Weight</b>	18 kg		16.5 kg		26 kg				



General	PCL 1225T					PCL 1125T		
<b>Load Impedance</b>	8 Ω	4 Ω	100 V	70 V	50 V	100 V	70 V	50 V
<b>Max. Midband Output</b> (THD < 0.2 %, 20 Hz...20 kHz)	135 W	270 W	270 W			270 W		
<b>Rated Output Power</b> (THD < 0.2 %, 20 Hz...20 kHz)	125 W	250 W	250 W 40 Ω	250 W 19.6 Ω	250 W 10 Ω	250 W 40 Ω	250 W 19.6 Ω	250 W 40 Ω
<b>Channels</b>	2					1		
<b>Max. RMS Voltage Swing</b> (THD = 1 %, 1 kHz)	35.4 V	117 V	82 V	59 V	117 V	82 V	59 V	
<b>Voltage Gain</b> (at 1 kHz)	32.2 dB	42.2 dB	39.1 dB	36.2 dB	42.2 dB	39.1 dB	36.2 dB	
<b>Power Handling</b> (at 1/8 max. output power, limited pink)	-	-	330 W	-	-	170 W	-	-
<b>Input Sensitivity</b> (at ROP or Voltage, 1 kHz)	0 dBu (775 mV)							
<b>THD</b> (MBW = 80 kHz, 1 kHz)	< 0.1 %							
<b>Frequency Response</b> (-1 dB, ref. 1 kHz)	65 Hz – 40 kHz							
<b>Input Impedance</b> (20 Hz...20 kHz symmetr.)	> 20 kΩ							
<b>Damping Factor</b> (at 100 Hz / 1 kHz, 4 Ω)	> 250	-			-			
<b>Signal to Noise Ratio S/N</b> (A-weighted)	103 dB					103 dB		
<b>Power Requirements</b>	230 V / 50 Hz – 60 Hz							
<b>Protection</b>	audio limiters, thermal overload, peak current limiters, power-on delay							
<b>Cooling</b>	front to rear							
<b>Safety Class</b>	I							
<b>Dimensions (WxHxD), mm</b>	483 x 88 x 405 mm, 19" / 2 HU							
<b>Weight</b>	23.5 kg					16.5 kg		

# DPA 4000 Series

## TECHNICAL SPECIFICATIONS

General	DPA 4410	DPA 4411	DPA 4120	DPA 4140
<b>Load Impedance</b>	100 Ω / 100 V, 50 Ω / 70 V 25 Ω / 50 V, 4 Ω / 20 V		50 Ω / 100 V, 25 Ω / 70 V 12.5 Ω / 50 V, 4 Ω / 28 V	25 Ω / 100 V, 12.5 Ω / 70 V 6.25 Ω / 50 V, 4 Ω / 40 V
<b>Rated Output Power (Mains)</b>	4 x 100 W (acc. to IEC 268-3 / 19.4) 2 x 200 W configurable 1 x 200 W + 2 x 100 W configurable		200 W (acc. to IEC 268-3 / 19.4)	400 W (acc. to IEC 268-3 / 19.4)
<b>Power Output Characteristics</b>	balanced, floating			
<b>Input Characteristics</b>	balanced			
<b>Input Sensitivity</b>	775 mV / 0 dBu			
<b>Input Impedance</b>	≥ 10 kΩ			
<b>Distortion @ 1 kHz and Nom. Outp. Power</b>	≤ 1 %			
<b>Interference Voltage (A)</b>	≤ 1.2 mV / -56 dBu			
<b>Frequency Response</b>	60 Hz .. 20 kHz			
<b>Load Impedance (monitor)</b>	600 Ω			
<b>Nominal Output Voltage (monitor)</b>	2 V / + 8.2 dBu			
<b>Output Characteristics (monitor)</b>	unbalanced	electronically balanced		
<b>Output Stage Topology</b>	Class-AB, Transformer, Floating			
<b>Power Requirements</b>	115 V / 230 V AC, ±10 % / 50 - 60 Hz or 24 V DC, -10 / +30 %			
<b>Mains Power Consumption</b>	1010 VA at nominal output		520 VA at nominal output	1020 VA at nominal output
	377 VA driven at -10 dB		200 VA driven at -10 dB	380 VA driven at -10 dB
	62 VA no signal	67 VA no signal	30 VA no signal	44 VA no signal
<b>24 V DC Power Consumption</b>	18 A at nominal output		9.1 A at nominal output	17.3 A at nominal output
	7.5 A driven at -10 dB		3.7 A driven at -10 dB	7.1 A driven at -10 dB
	1.0 A no signal / 2.5 mA in stand-by	1.1 A no signal / 2.5 mA in stand-by	0.4 A no signal / 2.5 mA in stand-by	0.6 A no signal / 2.5 mA in stand-by
<b>Protection</b>	High Temperature, Inrush Current Limiters, Short Circuit			
<b>Cooling</b>	Front-to-Rear, temperature controlled			
<b>Ambient Temperature Limits</b>	+5° C ... +40° C (40° F... 105° F)			
<b>Safety Class</b>	I			
<b>Dimensions (WxHxD), mm</b>	483 x 132 x 345 mm, 19" / 3 HU			
<b>Installation Depth without Connectors</b>	340 mm			
<b>Installation Depth including Connectors</b>	max. 410 mm			
<b>Weight</b>	22.3 kg	22.5 kg	13.2 kg	16.7 kg
<b>Color</b>	anthracite			
<i>Optional</i>	<i>Extension-kits for the DPA 4410 / DPA 4411:</i> NRS 90206 Pilot Tone Monitoring (for four amplifiers) NRS 90207 Ground-Fault Monitoring (for four amplifiers) NRS 90227 Output Transformer (floating, balanced monitor outputs) for DPA 4411  Additional Version DPA 4411: DPA 4411N: DPA 4411 + NRS 90206 + NRS 90207		<i>Extension-kits for the DPA 4120 / DPA 4140:</i> NRS 90222 Remote module (note: not supplied with the DPA 4120/DPA 4140) NRS 90224 Pilot tone & ground-fault monitoring (note: not supplied with the DPA 4120/DPA 4140) NRS 90225 Standard input module (note: not supplied with the DPA 4120/DPA 4140) NRS 90227 Output transformer (floating, balanced monitor output)  Additional Version DPA 4140: DPA 4140N: DPA 4140 + NRS 90222 + NRS 90224	



General	DPA 4245	DPA 4260
<b>Load Impedance</b>	28.5 Ω / 100V	20 Ω / 100V
	14 Ω / 70 V	9.8 Ω / 70 V
	1.8 Ω / 25 V	1.25 Ω / 25 V
	4 Ω / 37.4 V	4 Ω / 44.7 V
<b>Rated Output Power</b>	350 W (acc. to IEC 268-3 / 19.4)	500 W (acc. to IEC 268-3 / 19.4)
<b>Maximum Output Power</b>	450 W into 4 Ω	600 W into 4 Ω
<b>Output Power in Bridged-Operation</b>	700 W (acc. to IEC 268-3)	1000 W (acc. to IEC 268-3)
<b>Power Output Characteristics:</b>	balanced, floating	
<b>Input Characteristics:</b>	electronically balanced	
<b>Input Sensitivity</b>	775 mV / 0 dBu	
<b>Input Impedance</b>	20 kΩ	
<b>Distortion @ 1kHz and Nom. Outp. Power</b>	≤ 0.1 %	
<b>Frequency Response</b>	45 Hz .. 22 kHz (-3 dB)	
<b>Signal to Noise Ratio</b>	> 100 dB	
<b>Output Stage Topology</b>	Class-AB, Transformer, Floating	
<b>Power Requirements Mains</b>	230 V AC / 50 - 60 Hz	
<b>Mains Power Consumption</b>	1714 VA at nominal output	2268 VA at nominal output
	635 VA driven at -10 dB	842 VA driven at -10 dB
	78 VA no signal	131 VA no signal
<b>Protection</b>	audio limiter, thermal overload, DC, HF, Back-EMF, peak current limiter, initial current inrush limiter, power-on delay, saturation limitation for output transformers	
<b>Cooling</b>	Front-to-Rear, temperature controlled	
<b>Ambient Temperature Limits</b>	+5° C ... +40° C (40° F... 105° F)	
<b>Safety Class</b>	I	
<b>Dimensions (WxHxD), mm</b>	483 x 132.5 x 384 mm, 19" / 3 HU	
<b>Installation Depth without Connectors</b>	377 mm	
<b>Installation Depth including Connectors</b>	max. 437 mm	
<b>Weight</b>	20.5 kg	22.5 kg
<b>Color</b>	anthracite	
<i>Optional</i>	<i>Extension-kits for the DPA 4245 / DPA 4260: NRS 90208 Input transformer (for one input)</i>	

# DPA 8000 Series

## TECHNICAL SPECIFICATIONS

General	DPA 8150		
<b>Load Impedance</b>	50 V / 5 Ω	70 V / 9.8 Ω	100 V / 20 Ω
<b>Rated Output Power</b> , 1kHz, THD < 0.5%	500 W		
<b>Rated RMS Voltage Swing</b> , 1kHz, THD=1%	50 V	70 V	100 V
<b>Input Sensitivity</b> , rated power @ rated load, 1kHz	1.55 V (6 dBu)		
<b>Voltage Gain</b> ref. 1kHz	30.2 dB	33.1 dB	36.2 dB
<b>THD</b> at rated output power MBW=80kHz, 1kHz	< 0.5 %		
<b>IMD-SMPTE</b> , 60Hz, 7kHz	< 2.0 %		
<b>DIM 30</b> , 3,15kHz, 15kHz	< 0.2 %		
<b>Max. Input Level</b>	6.15 V (18 dBu)		
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB		
<b>Frequency Response</b> , ref. 1 kHz, rated load	50 Hz...20kHz		
<b>Input Impedance</b> , active balanced	20 k Ω		
<b>Signal to Noise Ratio</b> , A-weighted	> 102 dB		
<b>Output Stage Topology</b>	Class-D, Transformer, Floating		
<b>Power Requirements</b>	115 V / 230 V AC (-10% / +6%), 50-60 Hz or 24 V DC (-10% / +30%)		
<b>Power Consumption</b> , at rated Output Power	990 W (Mains) / 900 W (Battery)		
<b>Monitor</b> - rated Output Voltage - rated Load Impedance	1.3 V (4.5 dBu) 600 Ω		
<b>CAN</b>	10...500 kBit/s, 2 x RJ-45		
<b>Control Port</b>	1 x 8-pole Euro Block, 3 Control Inputs/Outputs 2 Reference Outputs (15 V, 100 mA/GND), 1 Ready/Fault Output		
<b>Protection</b>	Audio Limiters, High Temperature, DC, Short Circuit, Mains Over / Undervoltage Protection, DC Supply Undervoltage Protection, Inrush Current Limiter, Ground Fault		
<b>Cooling</b>	Front-to-Rear, temperature controlled fans		
<b>Ambient Temperature Limits</b>	-5 °C .. +45 °C		
<b>Safety Class</b>	Class I		
<b>Dimensions</b> (WxHxD), mm	483 x 88 x 376 mm, 19" / 2 HE		
<b>Weight</b>	16 kg		

DPA 8412



General	DPA 8225			DPA 8412		
<b>Load Impedance</b>	50 V / 10 Ω	70 V / 19.6 Ω	100 V / 40 Ω	50 V / 20 Ω	70 V / 39,2 Ω	100 V / 80 Ω
<b>Rated Output Power</b> , 1kHz, THD < 0.5%	250 W			125 W		
<b>Rated RMS Voltage Swing</b> , 1kHz, THD=1%	50 V	70 V	100 V	50 V	70 V	100 V
<b>Input Sensitivity</b> , rated power @ rated load, 1kHz	1.55 V (6 dBu)					
<b>Voltage Gain</b> ref. 1kHz	30.2 dB	33.1 dB	36.2 dB	30.2 dB	33.1 dB	36.2 dB
<b>THD</b> at rated output power MBW=80kHz, 1kHz	< 0.5 %					
<b>IMD-SMPTE</b> , 60Hz, 7kHz	< 2.0 %			< 1.0 %		
<b>DIM 30</b> , 3,15kHz, 15kHz	< 0.2 %			< 0.1 %		
<b>Max. Input Level</b>	6.15 V (18 dBu)					
<b>Crosstalk</b> , ref. 1 kHz at rated output power	< -80 dB					
<b>Frequency Response</b> , ref. 1 kHz, rated load	50 Hz...20kHz					
<b>Input Impedance</b> , active balanced	20 k Ω					
<b>Signal to Noise Ratio</b> , A-weighted	> 102 dB					
<b>Output Stage Topology</b>	Class-D, Transformer, Floating					
<b>Power Requirements</b>	115 V / 230 V AC (-10% / +6%), 50-60 Hz or 24 V DC (-10% / +30%)					
<b>Power Consumption</b> , at rated Output Power	990 W (Mains) / 900 W (Battery)					
<b>Monitor</b> - rated Output Voltage - rated Load Impedance	1.3 V (4.5 dBu) 600 Ω					
<b>CAN</b>	10...500 kBit/s, 2 x RJ-45					
<b>Control Port</b>	1 x 8-pole Euro Block, 3 Control Inputs/Outputs 2 Reference Outputs (15 V, 100 mA/GND), 1 Ready/Fault Output					
<b>Protection</b>	Audio Limiters, High Temperature, DC, Short Circuit, Mains Over / Undervoltage Protection, DC Supply Undervoltage Protection, Inrush Current Limiter, Ground Fault					
<b>Cooling</b>	Front-to-Rear, temperature controlled fans					
<b>Ambient Temperature Limits</b>	-5 °C .. +45 °C					
<b>Safety Class</b>	Class I					
<b>Dimensions</b> (WxHxD), mm	483 x 88 x 376 mm, 19" / 2 HE					
<b>Weight</b>	16 kg			18 kg		

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